

-  **16. Altitude and Temperature** Listed below are altitudes (thousands of feet) and outside air temperatures (degrees Fahrenheit) recorded by the author during Delta Flight 1053 from New Orleans to Atlanta. Is there sufficient evidence to conclude that there is a linear correlation between altitude and outside air temperature? Do the results change if the altitudes are reported in meters and the temperatures are converted to the Celsius scale?

Altitude	3	10	14	22	28	31	33
Temperature	57	37	24	-5	-30	-41	-54

6. ... revenue and salaries paid to the



24. Crickets and Temperature Find the best predicted temperature at a time when a cricket chirps 3000 times in 1 minute. What is wrong with this predicted value?

Chirps in 1 min	882	1188	1104	864	1200	1032	960	900
Temperature (°F)	69.7	93.3	84.3	76.3	88.6	82.6	71.6	79.6

3. Coefficient of Determination Using the heights and weights described in Exercise 1, the linear correlation coefficient r is 0.356. Find the value of the coefficient of determination. What practical information does the coefficient of determination provide?

Exercise 1: The following data were obtained from a study of the relationship between the number of hours a student spends studying and the number of books obtained and read.

EXCEL

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.312861333
R Square	0.097882214
Adjusted R Square	0.04911909
Standard Error	36.03976016
Observations	40

ANOVA

	df	SS	MS	F	Significance F
Regression	2	5214.420433	2607.210217	2.007299909	0.148720228
Residual	37	48057.97957	1298.864313		
Total	39	53272.4			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	47.44296868	34.85083305	1.361315198	0.181647358	-23.17152656	118.0574639	-23.17152656	118.0574639
WT	0.085290474	0.283296561	0.301064275	0.765050928	-0.488722884	0.659303831	-0.488722884	0.659303831
SYS	0.496835092	0.261772601	1.897964454	0.065523451	-0.03356658	1.027236763	-0.03356658	1.027236763

 **6. LDL Cholesterol** Identify the following:

- a. The P -value corresponding to the overall significance of the multiple regression equation
- b. The value of the multiple coefficient of determination R^2
- c. The adjusted value of R^2

 **15. Stock Market** Listed below in order by row are the annual high values of the Dow Jones Industrial Average for each year beginning with 1990. *Use only the first 10 values* (for 1990–1999) to find the best model and then predict the value for the year 2010. Is the predicted value close to the actual value of 11,655?

3000	3169	3413	3794	3978	5216	6561	8259	9374	11,568
11,401	11,350	10,635	10,454	10,855	10,941	12,464	14,198	13,338	10,606